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DRAWING.

THE time has come when the friends of education begin to think seriously of introducing drawing into the Common Schools, as a regular branch of instruction. It has long been considered an essential one in the best schools of continental Europe; and it seems to us that its advantages need only to be well understood, to bring it into use here.

Its use to the architect is well known; yet the enormous price architectural drawings command, proves how rare is the knowledge of the art. A more general cultivation of it would enable any well-educated person to draw the plan of his own house, or any architect to furnish drawings to his customers. The carpenter, also, needs its aid in his department. A lady of this city gave some instruction in perspective drawing to a carpenter in her employ, which enabled him not only to execute her wishes exactly, but which he afterwards turned to such good account, that he acknowledged it had been of the greatest advantage to him in his business.

It was suggested to him that he should exert his influence among mechanics, to interest them in the art, as one item in the education of their children, which he promised to do.

A machinist who invents a new machine, or makes an essential improvement in an old one for which he wishes to obtain the advantages of a patent, may feel doubly sure of success, if he can make an accurate drawing of his work; for, unless he can present a perfect model of it for public inspection, or give an exact description, in which no flaw can be found,—either by a practised or a malicious eye,—he is in danger of losing the benefit of his invention. It is expensive to have models of complicated machinery made, and very difficult to describe it; but good drawings may be an unerring and cheap security. To do this requires thorough instruction in the first principles of the art, however, and not merely a facility in copying the drawings of others.

It is also worthy of especial remark, that an inventive genius, however original and intelligent he may be, will be much more likely to succeed in his plans, if he is able to give an outward or objective representation of his ideas. By a drawing, he can impart permanency to his otherwise fleeting conceptions; and these he can then alter, re-arrange, and combine anew, with far greater facility than he could do if they had remained in his mind,—the objects of consciousness and memory only.

No artisan, in any department of mechanical labor, would fail to reap the advantage of knowing how to draw accurately. Cabinet-makers constantly import patterns for new furniture at considerable expense, and even the silversmith and the calico-printer are dependent upon drawings for their improvements and fashions. In Europe, and in some places in this country, persons gain their whole livelihood by making designs for calico-printing, for which large salaries are paid.

If the knowledge of drawing were made an item of public instruction, young people would go forth from the schools partly prepared for entering into the various mechanical trades; and individual taste, in improving the fashions and forms even of articles in common use, might often be a source of emolument and honest living, and would add embellishment to objects of utility. Two books are now before the public, well adapted to facilitate the introduction of drawing into schools. One is called "Linear Drawing, adapted to the Public Schools;" the other, "Easy Lessons in Perspective."

The little work upon "Linear Drawing" exhibits a plan of teaching large classes at once, by means of a black-board, all the elements of the art of drawing. The teacher stands at the board, draws and explains every line,—horizontal, perpendicular, oblique, curved,—and then proceeds to copy from patterns, or objects,—explaining every thing in the process,—while the pupils copy each line, &c., upon their slates or paper, as she slowly proceeds. In this way the principles of drawing architectural plans, ground plans, and even of making drawings from objects themselves, may be clearly set forth.

The sooner the principle is applied to the latter mode of drawing, the better. Care should always be taken, in doing this, that the object be at least as far from the eye as three times the longest measurement that can be taken either of its height or width.

A portion of the book is devoted to lessons upon the slate and black-board, in reference to various subjects. Many geometrical diagrams may be made intelligible to children by means of illustrations on the black-board; facts in astronomy and botany may also be thus exemplified, and geography and arithmetic made more intelligible and clear by its means than by any other that has ever been devised.

This little book should be in the hands of every teacher. A short course of lessons was given gratuitously, in one of the public schools of this city, by the ingenious authoress of the book, to as many of the pupils as were willing to stay once a week, after the regular school hours, for the sake of learning to draw. The result quite answered her expectations, and proved, to all who attended to the subject, the practicability of teaching drawing well by this method. Patterns prepared with much care were distributed among the children, in the intervals between the lessons, that they might be well practised upon. In a few instances, the progress made was quite remarkable; in all, satisfactory.

"Easy Lessons in Perspective," published several years since by the same authoress, is a book highly prized by those who have studied it, and is, indeed, the only practical work of the kind that we have, because the only one prepared with sufficient simplicity. It gives a well-tested method of instruction, adapted to schools and to lessons on the black-board. Nor is it one of those books that are simple because

superficial. It includes all the principles of the science well illustrated. A course of lessons in perspective drawing has lately been given to a class of teachers, by the same benevolent individual, for the purpose of showing how easily even this complicated branch of the art may be taught in the schools, by a good method. Very thorough instruction was imparted by the aid of a few models, (house, planes, box, and trees.) In many books upon the subject, the attempt is not even made to teach oblique perspective, it is considered so difficult a thing to be explained; but in the "Easy Lessons," &c., and also in this course of lessons to teachers, it was so clearly explained, and so patiently illustrated, that it was made perfectly intelligible. Practical explanations were also given of some geometrical diagrams, involved in perspective, thus bringing all the principles of the science within a few rules, easy to be understood and applied, after being illustrated in this familiar manner.

So little elementary instruction in the art of drawing is given amongst us, that drawing-masters, especially Europeans, who instruct in the higher branches, (by which is generally meant the finishing touches of foliage, sketches from nature, composition, &c.) complain of the great ignorance of perspective drawing which they find in their pupils. Without a knowledge of this, the most beautifully touched and finished drawing fails of producing either an agreeable or a correct impression.

If the example of this lady, in regard to drawing, should be followed by others, as well educated in other departments, and who might gain time from frivolous or even selfish pursuits to aid the general cause of public improvement, what rapid strides might be made in every part of the State, in all departments of knowledge!

When will persons of wealth, education, and leisure, learn, that the most honorable mode of spending their superfluous time and means is, in elevating the condition of the poor and ignorant around them?

Individuals well qualified are, doubtless, to be found; it is only an enthusiasm in the good cause that is wanting to make such knowledge and such advantages available for the good of *all*. Knowledge should be diffused like the common air, so that all may have the advantage of it, without realizing that it is a peculiar privilege.

We have spoken only of the utilitarian advantages of drawing; but, as a means of general cultivation, much might be said in its favor. Many faculties are brought into play by the education of this taste. The habit of observation that it cultivates may be applied to higher and more important uses than those which contribute to worldly prosperity. It is, doubtless, a universal taste, and youth is the season in which to call it forth, when the perceptive powers are active, and the mind and the organs flexible. Much practice is needed to make the mechanical execution perfect, so that a pencil cannot be put too early into the hands of children. Those who draw observe every object of sight with twofold intelligence and pleasure. This results from the quickening of the powers of observation inseparable from the practice; and they can, also, more easily form conceptions of objects that are only described. If a portion of the walls of every nursery were painted black, and children were encouraged to draw upon it with chalk, as soon as their little fingers could wield a piece of it, it would prove a source of great amusement, and would cultivate obser-

vation and mechanical skill very early. Many a fretful hour would be spared to the little prisoners, and many an unworthy device to entertain them be left untried by despairing nursery maids. It would be far better for children that their perceptive powers should be cultivated thus early, than that their minds should be excited by story-telling, or their little brains taxed with too early attempts to read. Reading would be a much easier process, also, after such exercise of the observing powers, than when it is the first object of the kind presented to them. All sound reflection leads to these conclusions, and experience verifies their truth.

BEAUTIES OF IGNORANCE.

If any thing ever did astonish the Indians, it was the steamer.

These poor and ignorant people, for the distance of 2000 miles up the Missouri River, had never seen or heard of a steamboat; and, in some places, they seemed at a loss what to do, or how to act. They had no name for it; so it was,—like every thing else, with them, which is mysterious and unaccountable,—called *medicine*, (mystery.) We had on board one twelve pound cannon, and three or four eight pound swivels, which we were taking up to arm the Fur Company's fort, at the mouth of the Yellow Stone; and, at the approach of every village, they were all discharged several times, in rapid succession, which threw the inhabitants into utter confusion and amazement; some of them threw their faces to the ground, and cried to the Great Spirit; some shot their horses and dogs, and sacrificed them to appease the Great Spirit, who, they conceived, was offended; some deserted their village, and ran to the tops of the bluffs, some miles distant; and others, in some places, as the boat landed in front of their villages, came with great caution, and peeped over the bank of the river to see the fate of their chiefs, whose duty it was, from the nature of their office, to approach us, whether friends or foes, and to go on board. Sometimes, in this flight, they were instantly thrown neck and heels over each other's heads and shoulders,—men, women, and children, and dogs, sage, sachem, old and young,—all in a mass, at the frightful discharge of the steam from the escape-pipe which the captain of the boat let loose upon them for his own fun and amusement. There were many curious conjectures, among their wise men, with regard to the nature and powers of the steamboat. Among the Mandans, some called it the "big thunder canoe;" for, when in the distance and below the village, they saw the lightning flash from its sides, and heard the thunder come from it; others called it the "big medicine canoe, with eyes;" it was *medicine*, (mystery,) because they could not understand it; and it must have eyes, for, said they, "it sees its own way, and takes the deep water in the middle of the channel." They had no idea of the boat being steered by the man at the wheel, and well might they have been astonished at its taking the deepest water.—*Catlin.*

Resolve to edge in a little reading every day, if it is but a single sentence. If you gain fifteen minutes a day, it will make itself felt at the end of the year.

ABSENCE, TARDINESS, &c., IN SCHOOLS.

[The salutary effect of rigid regulations, in regard to the evils of absence and tardiness in the schools, has been exemplified in the most gratifying manner, during the last year, in the town of Newburyport ;—as will appear by the following extracts from the excellent Report of their School Committee.—ED.]

One of the most serious hinderances to the success of our public schools in all past time, has been a want of constant and punctual attendance. It has been the standing topic for a paragraph in all the committees' reports ; and it has been a chief burden of complaint on the part of teachers, carried, in some instances, so far as to be offered by them as an apology for any deficiency in the progress of their schools.

During the former part of the year just ended, this cause of complaint was in the full tide of its influence. Your committee were satisfied, from the frequency of complaints made to them on this score, that something should be done to abate the evil, and at least to remove this ever-ready excuse for the backwardness of scholars or inefficiency of teachers.

Inquiries were therefore made by the board, as to the statistics of absence, tardiness, and premature dismissions, in the various schools, but particularly, at first, with reference to the Male High School. They ascertained that, as an average, *one tenth* of the scholars from either department were absent each half day through the summer term, and for purposes of mere pleasure,—an excursion to Plum Island, or attendance at the launching of a ship, for instance ;—that in one department *fourteen*, and in the other *twenty* scholars had been absent in one half day ; that such instances were “neither few nor far between,” and that *written excuses* from their parents were required, and uniformly obtained by them, on the following morning. They ascertained that, on an average, *one tenth* of the scholars daily presented written requests from their parents for dismissal an hour or more before the close of the school. They ascertained that the scholars thus frequently absent lost the lessons of the day on which they were absent, and also were incapable of proceeding understandingly with their class when they returned.

The teachers were either obliged to suffer such scholars to fall behind the regular classes, and of them form a new class, very much to their own inconvenience and the injury of the regular classes, or to submit to the disheartening alternative of requiring their classes to wait till the laggards could be brought up. As the time of the teachers was fully occupied with the existing classes, they could not with any propriety take the former course, and they felt compelled to adopt the latter.

In some instances, the same lesson was assigned, and laboriously explained, by the teacher for three or four different days, in order that *all* might be prepared to proceed understandingly ; and after all, some luckless absentee would come in and say, “*I was absent when the class went over that lesson, and I cannot understand it!*” This was a new demand upon the teacher's time and patience, which could not be answered without neglect to the regular classes.

In the mean time, it was discovered that the *regular* scholars became disheartened, and to some extent listless, and their progress was evidently retarded.

Your committee saw, or *thought they saw*, an incalculable waste of money, of time, of labor, of patience, and of improvement, in the existence of a condition of things now but faintly described. They saw that a very great injury must fall upon the delinquent himself. He was forming most ruinous habits,—habits of indifference to duty, to study, and to his own character. No one can count up the evil that has fallen upon a young person, when he has lost his self-respect as a scholar so far as to feel without remorse his *inferiority* to his classmates, and can come without blushing habitually to a recitation which he must *blunder* through, because he was unable, from his irregularity, to learn the lesson.

But the individual was by no means the only injured party. In fact, the *many*, the whole school, were obliged also to suffer on account of the *few*. It was because of the absence of the *few*, that the *many* in the class were obliged to dwell four successive days upon a lesson which had been thoroughly explained on the first. It was on account of the lagging *few*, that the *many* were doomed to suffer the mortification of a *snail-like* progress during the whole term, and at its close to be reported only a few pages ahead of the point from which they looked forward with high hope and cheerful resolve at its beginning. In other words, it was seen that the progress of the great majority was very seriously impeded during the week, the month, the whole year, by the inexcusable delinquency of the comparatively small number, who were themselves by no means enriched, by being kept away from the common fountains of knowledge.

It was known, moreover, to your committee, that there were in the town other pupils qualified to enter this school, who were awaiting an opportunity to obtain vacant seats; and they supposed they saw a manifest impropriety in allowing the limited number of seats in the High School to be claimed by those who would not occupy them, and refused to those who would. In short, it was perfectly obvious, that to allow these evils to continue without an attempt to abate them, would be to neglect the obligations of duty, the best interest of the delinquents themselves, and the advancement and prosperity of the whole school.

From the best information that could be obtained, and, indeed, from the nature of the case, your committee arrived at the conclusion, that most of the absence complained of,—excepting, of course, that occasioned by sickness,—and most of the premature dismissal, *was of itself unnecessary*; that almost every parent, by a little of system and forethought in the management of family affairs, could find ample time, aside from the six school hours, in which his child could perform his requirements. It was recollected that, taking the year through, only *one half* of the time between the rising and setting of the sun is demanded for school, even if we do not reckon the vacations, and the Wednesday and Saturday afternoons, to say nothing of the time which might be gained by early rising. It was understood, also, that many of those who spent their *school* hours in parental service, were wont to spend their *other* hours in play, thus evincing the want of parental

care and system, and clearly demanding the action of those to whom the superintendence of the schools had been committed.

With all these facts and considerations in view, and under a full conviction of the importance of the step they were about to take, at a meeting of the board held October 8th, the following regulations for the Male High School were unanimously adopted:—

ATTENDANCE.

MALE HIGH SCHOOL.

1st. "Pupils belonging to this school shall be required to attend punctually and constantly; and every boy absent for whatever cause, shall be restored to his former standing in school, *only on condition* that he shall bring a written excuse for his absence from his parent or guardian, and also, within a reasonable time, prepare himself to recite, to the satisfaction of his teacher, all lessons recited by his class during his absence.

2d. "Also, any boy absent from school more than one half day, during any month, unless his absence is occasioned by his own sickness, or by sickness or death in the family to which he belongs, shall not be allowed by the teacher again to take his seat, except by written permission of the sub-committee of the school.

3d. "And scholars dismissed during school hours by the request of their parents and guardians, shall be considered absent for the half day, on which such dismissal is requested."

These regulations went into operation on the 1st day of November. The result was most favorable; absences, except for sickness, have since been hardly known; dismissal before the close of the school has in only one or two instances been requested,—then not granted,—and tardiness very unfrequent. So perfectly satisfactory has been the result of this measure, that the statistics, furnished from the registers of the teachers for the months of November, December, January, and February, last past, are below set in contrast with those of the same months the year before.

English Department.

Half Days.		Half Days.	
Nov. 1840, absent, for all causes,	310	Nov. '41, absent, for all causes, only	24
Dec. 1840, " " " "	213	Dec. '41, " " " "	161
Jan. 1841, " " " "	242	Jan. '42, " " " "	88
Feb. 1841, " " " "	325	Feb. '42, " " " "	18
Total,	1090	Total,	291

Latin Department.

Half Days.		Half Days.	
Nov. 1840, absent, for all causes,	235	Nov. '41, absent, for all causes, only	26
Dec. 1840, " " " "	282	Dec. '41, " " " "	104
Jan. 1841, " " " "	305	Jan. '42, " " " "	72
Feb. 1841, " " " "	299	Feb. '42, " " " "	86
	1121	Total,	288
Add as above,	1090	Add	291
In both Departments, last year,	2211	In both Departments, this year,	579

Of the 579 absences this year, only 24 have been for other causes than "sickness or death in the family," leaving 555 cases arising from sickness in four months. Now, supposing the sickness to have been

the same last year,—and it is *probable* it was no greater, (though the registers do not make it certain,)—and admitting that all the absences this year were necessary, we have $2211 \text{ less } 579 = 1632$ cases, *proved* to have been unnecessary last year, and *saved* to the school by the measures of the present year, in the short space of four months!

Admitting the sickness to have been the same in both cases, and the absence for all other causes has been 24 this year to 1656 last year.

Again; suppose the four months to represent the gain for a whole year, and we have three times $1632 = 4896$ half days, or 2448 days, gained in a year. As there are five school days in a week, and about 48 school weeks in a year, equal to 240 days, divide 2448 days by 240, and we have TEN YEARS AND ONE FIFTH of school time saved in this single school!

Very little opposition to this measure has been manifested by the parents of the scholars. Only two or three cases have occurred in which a pupil has been absent more than one half day in the month; and the committee have found no cause, in these instances, to judge the absence inexcusable. They must, therefore, express their conviction that the experiment, thus far, has been most singularly successful.

Shortly after the above measures were adopted for the High School, it was ascertained that the evils of absence, tardiness, and early dismissal, existed even to a more alarming extent in the Male Grammar Schools, and that similar reasons could be assigned why these evils should there also be abated. Regulations similar to those for the High School, with somewhat *easier* provisions, were adopted, and put in operation in each of these schools on the 1st day of January. The following are the results:—

NORTH GRAMMAR SCHOOL.

	Half Days.		Half Days.
Jan. 1841, absent, for all causes,	441	Jan. '42, absent, for all causes,	169
Feb. 1841, " " " "	415	Feb. '42, " " " "	115
Total,	856	Total,	284

Of the 284 cases this year, 212 were occasioned by sickness. Allowing the 284 cases to have been necessary this year, and the sickness to have been the same in both years, there have been removed from the school, in two months, 572 interruptions by absence, clearly proved to have been not *absolutely* necessary.

WEST GRAMMAR SCHOOL.

	Half Days.		Half Days.
Jan. 1841, absent, for all causes,	511	Jan. 1842, absent, for all causes,	236
Feb. 1841, " " " "	439	Feb. 1842, " " " "	168
Total,	950	Total,	404

Of the 404 cases this year, 324 were occasioned by sickness; and the whole number of absences diminished more than one half, showing that 546 cases in two months last year were unnecessary.

SOUTH GRAMMAR SCHOOL.

Owing to a reduction in the number of scholars in this school, by the establishment of a new Primary School the present year, the com-

parison between the attendance of the two years, cannot so fairly be made. About the same result, it is believed, would be obtained by such a comparison. The absences for all causes the present year were:—

January	376
February	145
Total,	521

Of these 521 cases, 376 were occasioned by sickness.

On the whole, therefore, the board are fully persuaded that *very much has been gained* by the present arrangement, and *very little has been lost*. They are fully persuaded, if the very few parents who have been called to make some little sacrifice in order to send their children constantly, could visit these various schools as they have done, and could see, as *they think they have seen*, the ruinous tendency of the irregularity complained of, and the untold advantages already gained by a commendable constancy in attendance, that this minor inconvenience on the part of the few would be most cheerfully submitted to, while the “greatest good of the greatest number” is so undeniably promoted by it.

EASTERN METHOD OF MEASURING TIME.—The people of the East measure time by the length of their shadow. Hence, if you ask a man what o'clock it is, he immediately goes into the sun, stands erect, then, looking where his shadow terminates, he measures its length with his feet, and tells you nearly the time. Thus the workmen earnestly desire the shadow which indicates the time for leaving their work. A person wishing to leave his toil, says, “How long my shadow is in coming!” “Why did you not come sooner?” “Because I waited for my shadow.” In the 7th chapter of Job we find it written, “as a servant earnestly desireth his shadow.”—*Roberts's Illustrations*.

IDLENESS NOT A PLEASURE.—Particular care should be taken that children do not associate the ideas of *idleness and pleasure*. The mind and the body both need occasional recreation; but there is no necessity that either should ever, in our waking moments, be idle. Proper employment not only promotes good, but prevents evil; so, also, idleness has its positive as well as its negative effects.

Nature, or rather the God of nature, has so formed the human heart that it cannot be happy in a dormant state. Nothing is so grateful to the mind as the consciousness of being well employed. There is a principle in man which disposes him to be proud of responsibilities, and pleased with the idea of discharging them aright. This principle is early developed. Children are great utilitarians; they are never so happy as when invested with some responsibility. It is of great consequence that this should be encouraged. Children should be taught, as much as possible, to derive pleasure from usefulness.—*Maine Cultivator*.

WHO ARE THE EDUCATED?

[From the Mother's Monthly Journal.]

"She is a very highly-educated young lady."

"Indeed! is she?"

"Certainly. You speak as though you had not discovered it."

"I had not, it is true. But I wish to do her justice."

"She has attended school all her days, and the best schools too; and she has had the best of private teachers. She is a splendid singer; and she plays admirably on the piano, and harp, and guitar; she reads Latin, Greek, German, French, and Italian, and she speaks French as well as if it were her native language. And then in botany, and chemistry, and geology, and conchology, and every thing of the sort, she is perfectly at home in all the hard names; and she has studied all kinds of philosophy, and I don't know what else. Geography, and arithmetic, and grammar, and such children's studies, I suppose she learned with her A B C's; but I have heard her say she never liked them, and had nearly forgotten what she had learned of them."

"She must have acquired an immense amount of knowledge, if she understands all these matters, as you suppose she does. What use does she make of these splendid attainments?"

"Use! You do not think that she received this education that she might support herself? She is not obliged to teach for a living."

"O, no; I am aware that she is not obliged to earn her daily bread; she has a father amply able to support her in the finest style. Still, can she be of no use to any one? Is she under no obligation to be useful?"

"Surely, you would not have such an accomplished girl become a drudge?"

"No; but I would have her share her mother's care in house-keeping, and bring some of her vast acquirements into exercise in amusing and teaching her young brothers and sisters. Do not frown,—she may *teach* them, with a sister's tact and affection, without enacting or superseding the schoolmistress, though she would be most honorably employed, if she, to them, took the place of a teacher. I would have her lay herself out to entertain her weary, care-worn father, and show him how a rich, highly-cultivated mind, joined with a daughter's affection, can repay the expenditures he has made on her account. I would have her so expend the treasures of her rich mind and her winning graces upon her older brothers, as to make home the most delightful scene to which they can turn. She fills a large place in society. Here, too, I would have her turn her talents to good account. Such a young lady may be a potent auxiliary to a good cause, and a no less powerful opposer to a bad one."

"Well, I am very sure that Miss — never dreamed of any of these modes of usefulness, as you call them. She is satisfied with shining."

"Then I fear there is too much cause for my doubts whether she is educated."

"What consummate erudition!"

"She has, no doubt, learned many things. But are affection and gratitude to her friends exercised? Is her conscience active? Is

benevolence one of her governing principles? Has she a knowledge of human nature, and of the world as it is? Has she been trained to an aptness in using the advantages she possesses for the benefit and happiness of others? Has she learned to repress selfishness, and to yield her wishes and convenience to others? Does she live for the future, and for God? If these are not her aims, she is but very partially EDUCATED."

"I should not think Mrs. — qualified for that station; she has no education."

"Is it possible she is an uneducated woman?"

"It is really so. She never attended any school better than a common village school, or perhaps a country academy, where accomplishments were never thought of."

"But she is kind and ladylike in her manners; converses handsomely; possesses general intelligence; observes and discriminates accurately; reasons and judges with independence; reads almost every variety of literature; has a taste for science; looks with interest upon the phenomena of nature and the works of art; readily adapts herself to her condition and her associates; has benevolence of purpose, and is judicious in its exercise; performs the duties of her own peculiar sphere, and exerts a general influence, elevating and refining to the characters of those who are within its reach. In short, the faculties of her mind and the affections of her heart are schooled, and strengthened, and exercised, upon proper subjects, and under suitable limitations. Her character is not running out into extremes on one side, while it is defective on another, but has an equal development, and is well balanced.

"And yet, though you will not, I believe, deny one word I have said, you call this lady UNEDUCATED! Shall I repeat your own words? 'What consummate erudition!'"

"Is he an educated man?"

"I do not know your meaning in the question."

"Why, has he been through college?"

"No; but he has been a diligent student for five-and-twenty years. He has sought for and used the help of the best authors; he has patiently pursued some of the most profound and elevating subjects of research; he knows well the history of man; he studies human nature, and watches the progress of events; his views and acts spring from an enlightened and enlarged liberality; he is not a mere receiver of other men's ideas; the knowledge he acquires is digested, examined, arranged, and ready for the demands of practical life. He is continually augmenting his mental resources; while, by the wise use of all his capabilities, he is unremittingly doing good to his fellow-men. Is he educated? or is this term applicable only to him who has spent a certain number of years in an institution bearing a certain name, and has gone through a certain routine of lessons,—it may be by means of evasion and trickery,—and has occupied his mind with a certain number of words, which perhaps have all vanished before as much time has succeeded as he spent in acquiring them;—is such a man, only, to be pronounced EDUCATED?"

LARGE NUMBERS.

[From the Zanesville Gazette.]

Nothing is more common than for persons to speak of very large numbers without any definite idea of the value of such expressions. We speak of ten, a hundred, a thousand, with a pretty definite idea of the number signified; but when we speak of millions, billions, trillions, &c., it is without any definite conception of the value of such expressions. To set some of your young readers to thinking on this matter, I have picked up my pen, and, if any are led to look into the subject more closely, I shall not feel that my hour's labor will be idly spent.

The most obvious mode of numbering would seem to be to give an independent name to each number from unity upwards, indefinitely, as we now do to the numbers as high as twelve; but a moment's reflection must show that such a mode would require a number of names extremely burdensome to the memory, and withal would leave us unable to express any number beyond the limit of our vocabulary. But this is not all. Although we clearly enough understand the relative size of our several numbers up to twelve, if the series were extended to hundreds, thousands, &c., we should find it difficult to distinguish smaller numbers from larger ones. Such a system of numbering is nowhere known. Amongst all nations a new name is given to each number to a certain extent, and then the same number is repeated with some variation, and so on by successive steps. Ten is the basis or root of our system, as, indeed, it is of almost all known nations. We count to ten with independent names; then to twenty by repeating the same numbers slightly varied, as, four, fourteen, &c. The second ten brings us to twenty, or two tens; the third, to thirty, or three tens, &c.; until ten tens bring us to one hundred, and ten hundred to a thousand.

There is, however, something in the number *ten* that fits it peculiarly for the root of a system; though it might have been six, nine, twelve, or any other number. As the digits or fingers of the hands are generally resorted to in seeking to convey an idea of number, where we are at a loss for words, and as man is every where a ten-fingered animal, they were no doubt the counters to which we are indebted for our decimal or tenfold system of numeration. The Welsh seem once to have used *fifteen*, and some uncultivated people use *five*, the latter from the fingers of one hand, the former from the joints. Had man been a twelve-fingered animal, we should probably have had a duodecimal system of numeration.

But though this ingenious device serves, by grouping numbers together, to enable us to form as accurate a notion of any number of groups as of the individuals in a single group, and thus to understand pretty well what is meant by hundreds and thousands, it is still impossible for us clearly to comprehend millions, billions, and the long list of —illions often given in books. Our conception of such numbers is but little more definite than our notions of eternity. It may, however, throw some light on the subject for us to introduce a few illustrations.

Our congressmen and legislators use the word *millions*, and even *billions*, as familiarly as household words; and yet if a man were to count fifteen hundred dollars per hour, equal to twenty-five per minute, and work faithfully eight hours per day, it would require nearly three

months to count a million of dollars; and the dollars, if laid touching, would reach about one hundred and forty miles; while fourteen wagons, each carrying forty hundred weight, would not be sufficient to carry them. To count a million at one per second, would require very nearly a month, allowing six days per week and twelve hours per day. A quadrillion of leaves of paper, each a two hundredth part of an inch in thickness, would form a pile equal in height to three hundred and thirty times the moon's distance from the earth. A cannon ball flying twelve hundred feet per second for four years, would not reach thirty millions of miles.

The boast of Archimedes, "Give me a place whereon to rest my lever, and I will move the world," is familiar to every schoolboy; and yet, if we suppose the solidity of the earth to be 4,000,000,000,000,000,000,000 cubic feet, each weighing one hundred pounds, and that this ball of earth were suspended on a lever six thousand miles from the prop or fulcrum, and that Archimedes was able to exert a power of two hundred pounds, at the opposite end of the lever, and had he started from his fulcrum to his station at the end of the lever, just at the time when we are taught that Adam and his young bride were placed in Eden's lovely garden, and had he continued yet, through all time's varying seasons, to travel with the velocity of a ray of light, he would still be thousands of thousands of miles from his journey's end.

The precise ratio of the diameter of a circle to its circumference was long sought for with persevering industry. Archimedes fixed the ratio as 7 to 22, nearly. Afterwards 113 to 355 was found to be more accurate. The approximation has been continued by later mathematicians,—Vieta, Romanus, Van Ceulen, Sharp, Machin, Lagny, &c.,—until the ratio is now carried to one hundred and fifty-seven places of decimals. Mr. Grund, in his "Plane Geometry," says, in speaking of this last ratio, "It is so near the truth, that, in a circle whose diameter is one hundred million times greater than that of the sun, the error would not amount to the one hundred millionth part of the breadth of a hair."

The subject of the power of numbers is one deserving the attention of the curious; but I do not feel at liberty to trespass on your columns. The hint given may excite attention, by leading each to think of the operations of his own mind.

"Domestic rule is founded upon truth and love. If it have not both of these, it is nothing better than despotism. It requires the constant exercise of love in its most extended form. You must learn the dispositions of those under you, and teach them to understand yours. In order to do this, you must sympathize with them, and convince them of your doing so; for upon your sympathy will often depend their truthfulness. Thus you must persuade a child to place confidence in you, if you wish to form an open, upright character. You cannot terrify it into the habits of truth. On the contrary, are not its earliest falsehoods caused by fear much oftener than from any wish to obtain any of its little ends by deceit? How often the complaint is heard from those in domestic authority,—they are not confided in. But they forget how hard it is for an inferior to confide in a superior, and that he will scarcely venture to do so without the hope of some sympathy on the part of the latter."

ENGLISH COLLIERY SERFS.

The accounts just received from England by the *Caledonia*, respecting the privations and sufferings of the children employed in the English coal mines, add still darker shades to the picture than those which we gave in the last number of our Journal. They show more conspicuously and frightfully, how many human beings are now growing up in Great Britain, with about as little observance of most of the common decencies, proprieties, and virtues, of civilized life, in regard to dress, manners, and the intercourse between the sexes, as so many brute beasts.

We should not, however, have adverted to the subject at this time, were it not that, since the publication in our last number, of those heart-rending statements, a most worthy and esteemed friend has written us a kind but earnest letter of remonstrance against the introductory remarks which headed our article containing them. Our friend's grounds of complaint, if we understand him aright, are, first, that our condemnation was too severe; indeed, we should almost think, from his remarks, that he would deny the justness of it altogether; and, secondly, that we have wounded the feelings, though he acknowledges unintentionally, of a large body of men in this country.

We are sincerely sorry if we have been the occasion of giving a moment's pain to any class of well-meaning men, and particularly to so worthy an individual as our correspondent; and we hope to be able to satisfy both them and him that we have neither done nor meditated a wrong to any one.

I. 1. We have stated nothing but facts,—terrible facts, it is true, and enough to make any thing which has humanity in it, shudder with horror,—but still nothing but facts, derived from the most authentic testimony. We do not understand our friend to question this point. We have fabricated nothing; but, feeling the deepest interest in children, we have published an account of the condition of multitudes of them, in Great Britain, as a solemn warning and admonition to all those, who, from indifference or any more discreditable reason, would neglect the education of youth in this country.

2. We stated, also, another fact, that, while £70,000 were granted for the queen's stables,—for the queen's brute beasts,—a grant of £30,000 for the welfare and rescue of the queen's subjects,—of the desolate, brutified, suffering children of the queen's kingdom,—was simultaneously resisted; and that the lords and bishops went in solemn procession to the palace, and with all the parade and pomp of a state ceremonial, implored her majesty, in person, to intercept the single drop of water which was falling upon their parched and withering souls.

3. We did not state, as we might have done, that, several years ago, when Lord Brougham brought in his elaborate bill for a system of national instruction, expressly providing that the Scriptures should be read in all the schools, and even giving to the clergy of the established church a visitatorial power over them all, that bill was defeated, mainly because it gave dissenters a right to withdraw their children from the express inculcation of doctrines which they disbelieved.

4. We did not state, as we might have done, that, two years ago, when Lord John Russell gave notice that he intended to bring in a bill for a grant of £30,000 for a Normal School, to qualify suitable per-

sons, generally, and without distinction of sect, for teaching, such an outcry was raised against the proposed measure, that he was compelled precipitately to retract the notice, and no such school has yet been provided for. Nor did we state many other measures, direct and indirect, which the English tories and bishops have persevered in, to entail ignorance and vice upon the rising generation, rather than to acquiesce in the adoption of measures which would give any thing like an equality of privileges to those, who, by their money and personal services, bear a full share of the burdens of the nation. We refer our friend, upon this subject, to the parliamentary debates and other public documents.

5. But it may be urged that the English tories and bishops are as conscientious in their opposition to general education as we are in our advocacy of it; that they act in their way, as we act in our way; and who, it may be asked, shall decide between their conscience and ours? "To what pope, to what infallible council or church, shall the appeal lie? And do we know of any such tribunal in Massachusetts or Boston?" We answer, there is a higher tribunal than any suggested in the inquiry. Let the question be decided by the rule laid down for all such cases, by Jesus Christ: "As ye would that men should do to you, do ye also to them likewise." Suppose the children of the tories and bishops were in these subterranean dens, naked, hungry, scourged, dragging enormous loads, in places where they cannot stand erect for the whole day, though only three or four years old,—worked to fainting, and then flung aside on beds of sharp-edged flint-stones, to lie half-buried in pools of water,—not merely beaten, but made to beat each other, till the flesh upon their bones becomes as a sodden mass,—not merely till its natural form and shape are lost, but till the fibre itself is bruised and mashed to a jelly,—never hearing the name of God unless in oaths or blasphemy,—knowing no other gratifications than those of the appetites, and the sexes herding together like swine;—let us suppose this, and then suppose that Jews or Catholics enjoyed the revenues of these lords and bishops, and sat in their places of authority; and when, at last, some slow and scanty measure of relief is about to be furnished to the sufferers, the sanhedrim or conclave should resist it, unless, with every morsel of relief, these sufferers should also receive a bolus of Judaism or Catholicism;—would they think such conduct to be right, just, equitable, weighed in the balances of the sanctuary? No mortal can be so infatuated as to believe it. And if not right when committed *against* them, it is not right when committed *by* them. But we hope the declaration may never be fulfilled as to them, "With what measure you mete, it shall be measured to you again." Is not this a just view of the argument as drawn from conscience? or is there no extent of injustice which is not to be tolerated and cheerfully acquiesced in, if the perpetrator will only add to his guilt by saying he does it for conscience' sake?

II. As to wounding the feelings of any class or party of men in this country, we can hardly yield any faith to the apprehensions of our friend; but, if so, we would assure both him and them, that we have not purposely done so, and that, on a review of what has been said, they will find no cause of complaint.

We can conceive of but two classes of men in this country, who, by

any possibility, could take umbrage at our remarks ; first, those who sympathize with the English Tories in their views of civil government ; and, secondly, those who sympathize with the established church, in their views of ecclesiastical government.

1. That there are a few men amongst us who would rejoice in a return to a monarchical and aristocratical government, we are sorry to be compelled to believe. But that such men can look upon these thousands of suffering children, and, instead of feeling any compassion for them, can reserve all their good-will for the government by whose institutions such immense evils have been generated, is hardly credible. Indeed, we cannot believe that a man can be found, so unchristian, so barbarian, so inhuman, as to come before the world and say, "With the oppressed and their oppressors before me, your sympathies may be for the former, but mine are for the latter ; and I would continue the evil forever, rather than apply a remedy which would allow equal privileges to all." When such men speak, they speak *anonymously*,—concealing themselves, while they accuse others.

2. There is also a religious denomination amongst us, whose views of Christian doctrine and church government harmonize, to a great extent, with those of the predominant party in England. But there are broad differences, as well as coincidences, between them. The English clergy believe in the union of church and state,—that is, that the civil arm should uphold and enforce ecclesiastical authority. But the Episcopal church in this country believe no such thing. The English church, as a body, resist, and have uniformly resisted, all efforts for public instruction, unless it be such as they can control, and thereby bend the mind of the rising generation,—the children of all dissenters, as well as their own,—in subserviency to their views. The American Episcopal church has never, to our knowledge, as a body, advanced or advocated any such doctrine. In condemning the English bishops, therefore, for the ground they take in regard to national education, we condemn no American bishop, nor any religious party in America, which may have a bond of affinity with them. We should not be more surprised, if an American Catholic should say that we had assailed him, personally, because we might have spoken against the inquisition ; or that a Jew should complain, were we to charge Pontius Pilate with judicial murder. We have never uttered a word in this Journal, either in advocacy of, or in opposition to, any particular religious sect, or political party, amongst us ; and if any suspicion of this has been entertained, we have been misunderstood, or misconstrued. Our only object, and hope, and joy, are to do something towards rearing a generation of men, with sounder intellects and purer hearts, who, from the diverse and contradictory views which may be presented to them as truth,—social, political, or religious,—may be able to make a better selection than so many of their fathers have made.

BRIDGEWATER NORMAL SCHOOL. The next term of the Bridgewater Normal School will commence on Wednesday, the 20th inst.

Bridgewater, July 15, 1842.

N. TILLINGHAST, *Principal.*

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